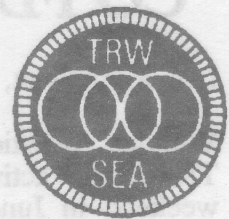




# CROSSTALK

A Publication of the TRW Amateur Radio Club



June, 1991

## W6TRW Field Day: June 22-23

**FIELD DAY: JUNE 22-23 AT FRIENDSHIP PARK in SAN PEDRO**

It's that time of year again! Field Day is rapidly approaching, and this year promises to be a lot of fun. We will be operating class 7A from Friendship Park in San Pedro, and planning is currently going full steam. The site has been reserved, the insurance is set, most of the band captains are in place, the food is coordinated - in short, things are coming together. The seven stations consist of 15m SSB, 15m CW, 20m SSB, 20m CW, 40m SSB, 40m CW, and VHF/UHF/etc. (more on the etc. later).

This year, there will be several new wrinkles at Field Day. We will be using the club's new 4KW

generator, which will fit into the back of the van, rather than having to tow one of the company owned mammoths up to the hill. We bought the generator late last summer and fired it up for the first time at the September picnic. Since then, we have been running it once a month during the TRW swap meet to keep the engine in shape. We'll give it a good workout soon!

Another new wrinkle is that we will be loading/unloading from the club storage container near the helipad, rather than the loft of building 65. This is expected to make the loading and unloading process much easier. Rather than having to carry tower sections and antennas down from the loft, we will just back a pickup truck up to the container and load straight in. When we moved everything into the container last Fall, it took 4 people about 10 minutes to unload the truck (in comparison to at least an hour before). By Sunday afternoon of Field Day weekend, this should be a very welcome improvement, indeed!

### CALENDAR

- Every Monday  
DCS Net on 145.32 Repeater 7:30 PM
- Every Wednesday:  
Emergency Communications Team Net on  
145.32 Repeater 12:30 PM
- Every Friday:  
Club Breakfast in Bldg S Cafeteria 7:00 - 8:00 AM
- June 22nd 23rd:  
Field Day - Friendship Park
- June 25th:  
Club Meeting, E2/1200 Noon
- June 29th:  
TRW/ARC Swapmeet, Aviation & Marine 7 AM
- July 2nd:  
Executive Board Meeting Upper Crust Pizza,  
Inglewood and Manhattan Beach Blvd. 5:00 PM
- July 15th:  
Shack Open House: Bldg 65 5-9 PM
- July 27th:  
TRW/ARC Swapmeet, Aviation & Marine 7 AM
- July 30th:  
Club Meeting and "Picnic", E2/1200 Noon

**SEE COMPLETE CALENDAR INSIDE**

### OSCAR AND ATV OPERATION PLANNED

Also, the club will again be operating advanced communications modes for extra points and for demonstration purposes. We will be operating packet using the club's laptop computer, and will be operating an OSCAR station (sporting a new tower and 40 element 440 Mhz beam). Orbital predictions indicate that OSCAR-13 will be visible during Saturday afternoon and evening of Field Day weekend, with AOS at 10:41am, apogee at 4:00pm and LOS at 9:18pm PDT. If we get everything set up in time, we may also operate OSCAR on Friday night for fun.

For the first time, the club will operate ATV from the Field Day site. We plan to make simplex contacts for points, and transmit video through the Mt. Wilson ATV repeater. There should be some other clubs transmitting through

CONTINUED ON PAGE 2...

# "CQ FD...CQ FD..DE W6TRW..."

Don Renkowitz, W6SQF

Without question, the high point of the TRW/ARC activity year is Field Day. That weekend in June represents the culmination of months of planning and expectation and brings together the coordination and operating expertise of the club. For those who have not participated, let me describe the events.

On Friday evening before the big day, a work party begins the assault on the club's equipment in Building 65 and the storage container. There, paraphernalia is loaded onto an awaiting trailer to be transported to the Field Day site. As in years past, this is a beautiful piece of real estate known as Friendship Park, located on a grassy hillside in San Pedro, overlooking L. A. Harbor.

Amidst organized chaos, the antennas sprout, like Jack's Beanstalk, coaxed by teams of would-be circus handymen, pushing and pulling, sometimes even in the same direction! Tents are pitched, cars are parked, motorhomes and RV's become home for the weekend. The mighty generator roars to life and the stage is set for the next day's event.

Saturday morning brings about considerable scurrying to hook up all of the antennas and stations and finalize the installations for the coming event. At noon, a 24 hour marathon of calling, reporting and logging begins (watch those dupes!). There are times when you fight

## W6TRW FIELD DAY

...CONTINUED FROM PAGE 1

the repeater, so it should be interesting and fun to see other Field Day operations live on ATV!

As always, there are still many details that need to be worked, and you are encouraged to lend a hand wherever and whenever possible. We need operators (especially CW), loggers, and people to set up/tear down. Even if you won't be able to work the contest, there are many things you can do now to help, so call Don Renkowitz or myself to find out what's needed. You can and will make a difference! 73 and see you at FD!

Jeff n9cza

**Field Day Talk-In: 145.32 SIMPLEX**

into pileups and times when you are the recipient of the pileup (these are the most fun). There are also quiet times, mostly at night, when there is time for ragchewing and getting to know your team partner. Meals are provided in the Mess Tent, with someone's YL or XYL serving up the chow. It's amazing that even simple fare tastes better outdoors.

As in the past, we will be operating seven stations. In addition to the usual complement of HF and VHF, CW and voice, we'll have OSCAR, Packet and ATV. If you can't find an activity that interests you in this assortment, you're not a ham.

Sunday morning is the last chance to rack up points before the noon hour deadline. Shortly after 12 comes the big packup and cleanup, with the crew returning the gear to Space Park to await another campaign.

W6TRW's Field Day performance has achieved national prominence and, despite the absence of some key people last year, we still scored in the top five stations nationwide in our operating class of 7A.

If any or all of the above has piqued your interest, give me a call and tell me how you want to participate. We need everyone, from antenna installers to operators (especially CW ops). Also on our need list are Loggers who are the ones who keep track of who you've contacted and usually alternate with operators. Especially needed are night operators. Operating nighttime hours allows you the chance to be with your family all day and still participate. We also need help with Sunday teardown. There's a job for everyone. Join the fun!

### DIRECTIONS TO FRIENDSHIP PARK:

Take the Harbor Freeway (110) south to its end at Gaffey St. Proceed south on Gaffey to 9th St. and make a right turn (west) on 9th.

Proceed west on 9th to Western Ave. Just past Western, on the south side, is Friendship Park Dr. which leads up the hill to the park. Follow this road to the parking lot at the top and drive to the gate at the north end of the parking lot.

Open the gate, drive through, CLOSE the gate! Follow the road up to the Field Day site.



# Open House and "Picnic" Meeting will Highlight July Club Activities

The TRW Amateur Radio Club will shake things up a bit in July and invites everyone to share in the action.

First, on Monday, July 15th, the club will hold an Open House of its Ham Shack in Building 65 from 5 until 9 pm. W6TRW is one of the best equipped company-sponsored amateur radio stations around, offering HF operation via a Kenwood TS940 and Henry 2K amplifier, VHF/UHF capabilities from 6 meters to 1.2 GHz in all modes, an OSCAR station with automated antenna tracking capabilities, and other interesting modes including Amateur Television (ATV) and packet.

If you've never seen the station or if it's been a while, take this opportunity to drop in, operate, and enjoy some refreshments provided by the club. Club members and non-members as well as non-TRW employees are welcome to attend.

Building 65 is located at the southeast corner of Rosecrans and Douglas (one block west of Aviation). Escort of non-TRW personnel is

required and will be provided by club members. Call 38569 from the lobby telephone.

Also in July, the club will be combining two activities into one as we present a Club Meeting and "Picnic" on July 30th. (The picnic originally scheduled for July 17th is CANCELED). This meeting will be held in Building E2, Room 1200 at noon on Tuesday, July 30th. Lunch will be provided by the club to all attendees.

This meeting will feature a guest speaker and doorprizes and will last for one hour.

Building E2 is the tall white building in the middle of Space Park with the red TRW logo on its top. Enter the parking lot from Marine Avenue at stop light one block east of Aviation.

Talk-in for both of these events will be on the W6TRW 2-meter repeater (145.32, input -600 kHz, PL 2A (144.6 Hz)). Also call the TRW/ARC HotLine at (213) 813-9569 for up-to-date info.

## 1991 Novice Class Planned

The club plans to offer a Novice class again this fall. I'd like to express my appreciation to those who helped last year. We need more help this year, however, to put on equipment demos and help teach the class since I may be out of town more often.

We also need suggestions for a classroom location outside TRW (preferably free). In 1990 we had six non-TRW employees who required escort and we were limited on demos since radio equipment is difficult to bring in and out of TRW buildings.

Please contact Bill Shanney at 813-1108 or evenings at (213) 542-9899 if you can help.

### FOR SALE:

Due to my move to an area with strict CC&R's, I have the following antennas for sale. All in good condition. TH6DXX Beam, \$50. Low band Mini Quad, \$40. 40' Triad crank up tower (you pick up) \$200. Contact Bill Schrecengost, KE6LB, (213) 541-9350.

### WANTED:

PC system suitable for packet and shack use. Cheap! Here's a chance to give your old system a good home. Please call David Grybos, KK6US, at (213) 212-7027 evenings or leave a message.

# DX Antennas and Propagation

by Bill Shanney, KJ6GR

Sunspot cycle 22 is barely over its peak and we still have a few years of good DX propagation conditions ahead of us. Many new hams and others recently bitten by the DX bug wonder what antenna is best for them. The answer, of course, is very complex depending primarily on finances and available space (assuming an understanding significant other, hi).

The key element of DX propagation is the angle that the signal leaves your antenna or "take off angle." A low takeoff angle will provide the minimum number of hops your signal must traverse to reach its DX destination. A 10 degree takeoff angle signal returns to earth 1700 miles away while a 20 degree angle signal only covers an 1100 mile distance for a typical F2 layer hop. A signal traveling 6600 miles would require six hops for the 20 degree case but only four hops for the 10 degree case. The signal loses energy at each reflection due to scattering and absorption. The average per hop loss is about 5 db (or about one S-Unit) so for the above example, the 10 degree takeoff angle produces a signal at the other end that is 10 db stronger.

Now that we've established the need for the lowest takeoff angle possible, let's talk about antennas. A low dipole has a high radiation angle and is a poor DX antenna. A Yagi has gain but has about the same radiation angle as a dipole at the same height above ground. A high Yagi is hard to beat, but a high dipole is better than a low Yagi. The gain of a low Yagi is offset by the signal loss due to one extra hop.

A great number of DX stations I contact are using vertical antennas. Verticals have a very low radiation angle when mounted over a very good conductor. Sea water is a very good conductor, but soil is not. An extensive ground radial system is required to reduce the ground loss of the soil. Many of us don't have the space or the desire to install such a system. An elevated vertical with two to four symmetric quarter wave radials is an excellent alternative. Such an antenna, often called a ground plane antenna, has very good low angle performance when mounted a quarter wave or less above

ground. Mounting ground planes higher than this causes high angle lobes to appear which reduce the radiated signal level at low angles.

My personal recommendations would be: first, a Yagi or Quad at a height of 45 feet or more, second, a dipole at 45 feet or more and third, an elevated vertical. On a pure low angle performance basis, the vertical would win out but it is a noisier antenna since it picks up more man made noise which is mostly vertically polarized. If you are out in the country, away from high voltage power lines and noisy factories, the vertical may be the best choice. 73 and good DXing.

## AXAF QSL CARDS AVAILABLE

Jerry Dean, WA6GVO, QSL Manager

New TRW QSL cards are now available. Many of you may have purchased our last QSL cards depicting the Gamma Ray Observatory (GRO) which was recently launched into orbit. Our new cards depict the next observatory being developed by TRW for NASA, the Advanced Xray Astrophysics Facility (AXAF) which is scheduled for a mid 1990's shuttle launch.

These cards are in full color with a brief description of the AXAF printed on the back. The cards can be over-printed with your own call.

The club is selling these beauties at the rock bottom price of 100 for a dollar. They may be purchased at a club meeting or send your order to the club address, c/o QSL Manager.



# Operating Tips and Hints

## EFFECTIVE TELEPHONE RFI FILTER

By Bob Hume, KG6B

The PI network filter shown below has been found to be very effective in curing telephone RFI complaints at KG6B while running high power. A filter must be installed close to each telephone. The construction uses a modular plug box from Radio Shack which neatly accommodates the parts.

The filter is quick and easy to install external to the phone to avoid risky internal modifications. The cost of each filter is about \$10. Radio Shack catalog numbers are shown.

C = .01 ufd 500 WVDC disk ceramic (272-131)

L = 25 turns of #22 solid wire (278-1295) on Amidon FT-50A-75 core (1.87 mH).

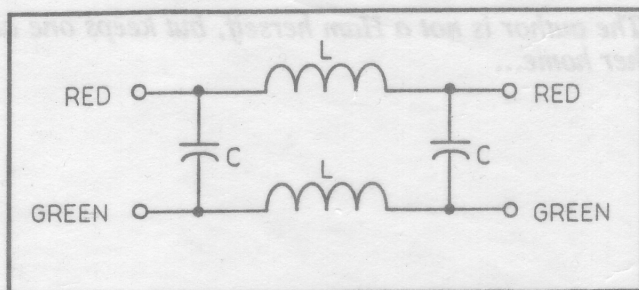
Box with female modular plug (279-420)

12 inch modular male to spade lug line (279-391)

The Amidon cores can be ordered from:  
Amidon Associates  
P.O. Box 956  
Torrance, CA 90508

Or place a phone order by calling (213) 763-5770. The cores cost \$.80 each.

This article was submitted to Crosstalk in November of 1990. Since then, a good article covering telephone RFI filter design by Bill Orr, W6SAI, in the April, 1991 issue of CQ Magazine, page 72, arrived at a similar PI network design. This article stressed large separation (two inches) between the two capacitors to achieve good attenuation of RF.



## HF Propagation Predictions

by Bill Shanney, KJ6GR

I really enjoy DXing but, like many others, can't sit by my rig all day waiting for that "new one" to come on the air. When I first started DXing two years ago, they were all "new ones" but now, 240 countries later, my main focus is working DXpeditions and looking for a few specific countries. I rely on propagation predictions and plan ahead when to look for a specific station on which band. I just worked YA0RR by listening as 20 meters opened just as predicted and beat the crowd.

I find the propagation predictions given by George Jacobs in CQ Magazine to be accurate but too general. I rely mainly on "MINIPROP version 3" by Sheldon Shallon, W6EL, for accurate predictions. This program, written for IBM PC's, computes MUF and path loss versus time of day to any specified location on each of the five major HF DX bands. It will even compute long path openings.

The only inputs required by this program are the DX station's location (latitude and longitude or call sign prefix) and the sunspot number or solar flux. The most useful output is a chart showing receive signal strength on each band at half hour intervals. Using this data, one can decide which time to listen on each band or whether it is even worth listening during some time you may have free.

Miniprop assumes 100 watt transmitter and a dipole for its calculations. A gain correction factor can be added to account for a high gain beam or a linear amplifier. The program uses the minimum radiation angle you specify for your antenna system in its calculation of the number of hops. It also tells you if the propagation path is polar which may also be affected by high "A" and "k" indices.

Miniprop is very easy to use and fairly accurate. It does not account for the effects of ionospheric disturbances due to flares or other solar events which are often impossible to model. Miniprop has many other features and available data

CONTINUED ON PAGE 6...

# The Care and Feeding of Your Pet Ham

By Laura Sargent

The pet Ham is one of the most intelligent of pets, often seeming almost human. But he can also be one of the most difficult to keep. Only a person with a great deal of patience and understanding should attempt to keep a pet Ham.

The following is a short guide to some of the most important things that you should know about caring for your pet Ham.

**LIVING AREA:** Your pet Ham should have a private area of his own, an entire room, if possible, where he will not be disturbed. He will spend many happy hours alone there with his collection of treasures (boxes, wires, bits of metal, glass, paper, plastic, etc. that he will bring home regularly). He should be encouraged to confine his activities to this nest room in order to protect the rest of the house from his natural tendencies toward noise, clutter and making holes in the walls.

**EXPENSES:** Raising your pet Ham can turn into an expensive hobby. But, unlike most pets, the pet Ham can be trained to work outside the home for short periods and, so, bring in enough money to cover part or all of his expenses.

**FEEDING:** The well behaved pet Ham will be able to eat with the family on occasion but he usually feels more comfortable and secure if he can take many of his meals in the privacy of his nest room. It will be your responsibility to see

that your pet Ham is kept well supplied with food and drinks during the long periods of time that he will spend alone in the nest room.

**HOUSEKEEPING:** Pet Hams can usually be trained to use the family bathroom facilities.

**OBEDIENCE TRAINING:** Most pet Hams can be trained to respond to a few simple commands, the easiest for him being sit and speak. Once your pet Ham has learned these commands, he will sometimes practice them on his own for hours at a time.

**HEALTH CARE:** The pet Ham is especially subject to minor irritations of the lower back and sore throat from too much sitting and speaking. The special CW breed tends to have a tired wrist rather than sore throat, and the RTTY versions may suffer from tired and hurting eyes depending on his age and monitor.

**TRAVELING:** Your pet Ham will gladly travel with you in the family car if he is allowed to bring some of the collection of his nest room. His favorite trips will be to places where he can associate with other pet Hams from other families.

**BREEDING:** If you plan to breed your pet Ham, you should do so as early as possible after you get him. As the pet Ham matures, he becomes more and more reluctant to engage in any activities not connected with his nest room collection.

---

## HF Propagation Predictions

...CONTINUED FROM PREVIOUS PAGE

outputs. It is available directly from Sheldon Shallon, W6EL, 11058 Queensland St., Los Angeles, CA 90034-3029.

For more information send an SASE to W6EL or read the writeup in Bill Orr's "Ham Radio Techniques" column in the May, 1990 Ham Radio Magazine, pages 57-61.

*From a publication called "Scuttlebutt" which is published by + The Waterway Radio + Radio and Cruising Club.*

*The author is not a Ham herself, but keeps one at her home...*



# June 1991

## TRW Amateur Radio Club

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1
2	3	4 Executive Board Mtg.	5 ECT Net	6	7	8
9	10	11	12 ECT Net Picnic	13	14 Flag Day 	15
16  Father's Day	17	18	19 ECT Net	20	21 Summer begins	22 <b>FIELD DAY</b>
23 <b>FIELD DAY</b>	24	25 Club Meeting	26 ECT Net	27	28	29 Swapmeet
30						

May

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

July

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

# July 1991

## TRW Amateur Radio Club

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	<b>1</b> <i>Dominion Day (Canada)</i>	<b>2</b> <i>Executive Board Mtg.</i>	<b>3</b> <i>ECT Net</i>	<b>4</b>  <i>Independence Day</i>	<b>5</b>	<b>6</b>
<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b> <i>ECT Net</i>	<b>11</b>	<b>12</b>	<b>13</b>
<b>14</b>	<b>15</b> <i>Shack Open House</i>	<b>16</b>	<b>17</b> <i>ECT Net</i>	<b>18</b>	<b>19</b>	<b>20</b>
<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b> <i>ECT Net</i>	<b>25</b>	<b>26</b>	<b>27</b> <i>Swapmeet</i>
<b>28</b>	<b>29</b>	<b>30</b> <i>Club Meeting and "Picnic"</i>	<b>31</b> <i>ECT Net</i>			

June

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

August

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31



# August 1991

## TRW Amateur Radio Club

SUNDAY

MONDAY

TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

SATURDAY

				1	2	3
4	5	6 Executive Board Mtg.	7 ECT Net	8	9	10
11	12	13	14 ECT Net Picnic	15	16	17
18	19	20	21 ECT Net	22	23	24
25	26	27 Club Meeting	28 ECT Net	29	30	31 Swapmeet

July

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

September

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

# TRW AMATEUR RADIO CLUB

## OFFICERS

President	Jeff Shields	N9CZA	D1/1302	812-5669
Vice President	Dave Williams	KF6IB	04/1678	813-7287
Secretary	Rich Sauer	N6CIZ	R4/1041	813-5869
Treasurer	Chris Wachs	WA2KDL	M4/2344	813-1506

## STAFF

Activities Manager	Don Renkowitz	WA6SQF	M5/1569	814-5739
Emergency Coordinator	Calvin Hashi	N6SSW	M4/2375	813-3543
Field Day Chairman	Don Renkowitz	W6SQF	M5/1569	814-5739
LAACARC Delegate	Jeff Shields	N9CZA	D1/1302	812-5669
Librarian / QSL Manager	Jerry Dean	WA6GVO	R2/1062	812-0770
Membership Chairman	Gary Vinnie	KG6JP	R5/2231	813-0882
Past President	Rich Sauer	N6CIZ	R4/1041	813-5869
SEA Council Rep	Randy McKechnie	W6ZWS	R5/2290	813-0762
Swapmeet Manager	Frank Cartier	WA6RAY	R9/1831	812-2293
Technical Chairman	Chris Wachs	WA2KDL	M4/2344	813-1506
Training Chairman	Bill Shanney	KJ6GR	R5/1230	813-1108
Trustee	Phil Bergeron	N6PB	R5/2241	813-0511
Crosstalk Editor	Rich Sauer	N6CIZ	R4/1041	813-5869

W6TRW Computer BBS (24 hours, 2400/1200/300, 8 N 1)

812-4970

W6TRW Hotline (Club Answering Machine)

813-8569



TRW Amateur Radio Club  
One Space Park  
S/1161  
Redondo Beach, CA 90278

FIRST CLASS

Deliver To:

